

Application No.: 10/726,997

Case No.: 58389US004

REMARKS

Before entry of this amendment, claims 1 to 14 are pending. In this amendment, claims 8 and 11 are being canceled, and claims 1, 4, 6, 7, 9, 10, 12, and 14 are being amended.

Reconsideration and continued examination of this application is respectfully requested.

Obvious-type Double Patenting Rejections

Claims 1-14 were provisionally rejected over various claims of copending U.S. Patent Application Serial No. 10/727,026 (Attorney Docket No. 59417US002), under the judicially-created doctrine of obviousness-type double patenting ("ODP"). In response, Applicants submit herewith a terminal disclaimer over the '026 application.

Claims 1-14 were also provisionally rejected over various claims of Application No. 10/727,072 (Attorney Docket No. 59416US002), under the judicially-created doctrine of obviousness-type double patenting ("ODP"). Applicants note that on Aug. 15, 2006, shortly before the Office Action was mailed, the '072 application issued as U.S. Patent No. 7,091,653 (Ouderkirk et al.).

In view of the issuance of the '072 application, Applicants are treating the rejection as an ordinary (rather than provisional) ODP rejection. In response, Applicants submit herewith a terminal disclaimer over the '653 patent.

§ 103 Rejections

The Office Action rejected claims 1-4, 6-12, and 14 under 35 USC § 103(a) as being unpatentable over U.S. Patent 5,813,753 (Vriens et al.) in view of U.S. Patent 6,172,810 (Fleming et al.). The Office Action asserted, among other things, that Vriens teaches a layer of phosphor material (phosphor grains) within an epoxy material 34, presumably constituting a phosphor layer spaced apart from the LED 31 (FIG. 3).

In response, claim 1 has been amended to even more clearly distinguish over the cited references. In amended claim 1, a "phosphor layer" comprises "particles of phosphor material dispersed in a binder", and this layer (including both phosphor particles and binder) is "spaced apart from the LED". Such an arrangement is depicted throughout the figures of the present application, e.g., FIGS. 1-2 (FIG. 2 showing the phosphor assembly 16 in greater detail), 5, 6, 7,

- 5 of 10 -

Application No.: 10/726,997

Case No.: 58389US004

8, 9, 10, and 15. Support in the specification for the amendment can be found for example at page 3 lines 12-13 and page 14 lines 23-26. Other amendments are also being made to claim 1, in the "wherein clause", for consistency and for readability (deletion of the extraneous comma). No new matter has been added.

The amended claim is very different from the teachings of Vriens. To the extent Vriens teaches the combination of phosphor particles dispersed in a binder, such combination is consistently shown to be *in contact with* the LED, not spaced apart from it. Fleming, on the other hand, teaches neither an LED nor phosphor particles. Since neither reference teaches the claimed phosphor layer in relation to the LED, the rejection of claim 1 cannot be sustained and should be withdrawn. The rejection of dependent claims 2-4, 6-12, and 14 should also be withdrawn for the same reasons.

Applicants also note that Fleming is non-analogous art. For purposes of evaluating the obviousness of claimed subject matter, each reference relied upon must constitute "analogous art". See MPEP§2141.01(a)(1). In this regard, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. See *Id.*

The Fleming reference is not in the field of applicant's endeavor. Fleming is directed to retroreflective articles that have the ability to redirect incident light back towards a light source, such as road signs, barricades, license plates, safety vests, jogger's shoes, and canvas-sided trucks. See col. 1, lines 10-20. Applicants field of endeavor is phosphor-based light emitting diode (LED) light sources. Retroreflective articles and phosphor-based LED light sources are not the same field of endeavor. One of skill in the phosphor-based LED light source art would not consult the retroreflective art when trying to solve a phosphor-based LED light source problem. Thus, the Fleming reference is not in the field of applicant's endeavor.

The Fleming reference is not reasonably pertinent to the particular problem with which the inventors were concerned. The inventors were concerned with, among other things, improving the operation of phosphor-based LED light sources. The problems associated with retroreflective articles are different than the problems associated with phosphor-based LEDs. For example, selecting reflector materials that can withstand the energy flux of both the LED and the phosphor layer and the elevated operating temperatures of a phosphor-based LED are not

Application No.: 10/726,997

Case No.: 58389US004

problems encountered with retroreflective road signs, barricades, license plates, safety vests, jogger's shoes, and canvas-sided trucks. Thus, one would not be reasonably expected or motivated to look to the retroreflective arts for improving phosphor-based LEDs. Hence, the claims (1-4, 6-12, and 14) rejected over Vriens in combination with Fleming are additionally submitted to be allowable since Fleming is non-analogous art.

For consistency with amended claim 1, claim 4 is being amended to specify that the "binder" comprises an adhesive. Support can be found, for example, at page 14 lines 23-26 and page 25 lines 14-17. No new matter has been added. With respect to claim 4, the Examiner is mistaken by again asserting that Vriens discloses an adhesive. As mentioned in our prior response, Vriens refers to an "epoxy", not an "adhesive", and these terms do *not* mean the same thing. Applicants refer to the Encyclopedia of Polymer Science and Engineering (John Wiley & Sons, 1986) on the topic of "Epoxy Resins". This reference demonstrates that epoxies are *only sometimes* (and not predominantly) used as adhesives:

"Epoxy resins were first offered commercially in 1946 and are now used in a wide variety of industries. Of the 135 metric tons sold in the United States in 1983, 45% (60 t) were used in protective coatings, and the remainder (75 t) in structural applications such as laminates and composites, tooling, molding, casting, construction, bonding and adhesives, and others."

Encyclopedia of Polymer Science and Engineering (John Wiley & Sons, 1986) at p. 322.

Since there is no teaching that the epoxy of Vriens is an adhesive, the rejection of claim 4 should be withdrawn for this additional reason.

In connection with claim 4, the Office Action also refers to U.S. Patent 5,540,978 (Schrenk), alleging that it teaches "an adhesive layer used to join two polymer layers in a thin film device for use with LED (Column 7, Lines 62-64)". The undersigned acknowledges that Schrenk discusses using a third polymer as an adhesive or glue layer to secure first and second polymer layers of a multilayer ultraviolet reflective film, but that is not what is being claimed in claim 4. Furthermore, no such teachings relating to LEDs (light emitting diodes) can be found in the cited portion of Schrenk, or anywhere else in Schrenk.

Claim 6 is being amended to clarify that the polymeric multilayer reflector is itself substantially free of inorganic materials. Support can be found at page 9 lines 12-13. No new matter has been added.

Application No.: 10/726,997

Case No.: 58389US004

Claim 7 is being amended to specify that the phosphor layer set forth in amended claim 1 (which requires particles of phosphor material dispersed in a binder) is discontinuous rather than continuous. Support can be found at page 19, lines 9-21. No new matter has been added. The phosphor grains of Vriens dispersed in an epoxy may in combination constitute some type of phosphor layer, but such layer (as a combination) is nowhere indicated to be discontinuous. The rejection of claim 7 should be withdrawn for this additional reason.

Claims 9, 10, 12, and 14 are being amended to replace the term "dot" with "region", for clarity. Support can be found at page 19, lines 9-13. No new matter has been added.

Claims 5 and 13 were rejected as obvious (35 USC § 103(a)) over the Vriens/Fleming combination, further in view of U.S. Patent 5,540,978 (Schrenk et al.) (for claim 5) or "Giant Birefringent Optics in Multilayer Polymer Mixors" (Weber et al.) (for claim 13). In response, these claims are submitted to be patentable at least due to their dependence from amended claim 1, and the fact that Fleming is non-analogous art.

Finally, we wish to address the points made in the paragraph bridging pages 10-11 of the Office Action. The Examiner wrote:

"Applicant points to the specification, Page 3, Lines 1-23, as support for the assertion that one or more phosphor materials mixed with a binder is described as a 'substantially uniform phosphor layer.' Examiner respectfully submits that this phrase is not found in the passage cited. Applicant also points to the specification at Page 9, Line 14 to Page 10, Line 3 as support for this assertion, wherein the Examiner respectfully submits that although the phrase 'substantially uniform phosphor layer' is found on Line 15 of Page 9, it is not used to describe the phosphor layer composed of one or more phosphor materials mixed with a binder in the manner quoted by Applicant."

In our previous response, Applicants actually stated the following:

"In response, Applicants disagree that Vriens teaches any 'discontinuous layer of phosphor material', as that term is used in the present claims and specification. The present specification does not teach that a layer becomes discontinuous simply because phosphor particles are dispersed in a binder material. On the contrary, for example, Applicants describe layer 22 of FIG. 2 (composed of one or more phosphor materials mixed with a binder) as a 'substantially uniform phosphor layer'. See e.g. FIGS. 2-3, and the present specification at page 3 lines 1-23 and page 9 line 14 to page 10 line 3. Compare the discussion of

Application No.: 10/726,997

Case No.: 58389US004

discontinuous phosphor layers on page 19 lines 9-28 of the present specification. Clearly, Vriens does not disclose any discontinuous layer of phosphor material.”

In referring to “FIGS. 2-3, and the present specification at page 3 lines 1-23 and page 9 line 14 to page 10 line 3”, Applicants did not state or imply that the phrase “substantially uniform phosphor layer” could be found in both cited passages (page 3 lines 1-23, and page 9 line 14 to page 10 line 3). Rather, Applicants cited the first passage (page 3 lines 1-23) because it provides a description of the phosphor assembly 16 shown in FIG. 2. This description in combination with the figure plainly teaches that the layer 22 is made up of particles of phosphor material dispersed in a binder. The second cited passage (page 9 line 14 to page 10 line 3) then makes the connection between the phosphor assembly of FIG. 2 and the roll of sheet material 30 of FIG. 3, which is said to comprise “a substantially uniform phosphor layer”, and pieces of which “can have a cross-sectional construction similar to that shown in FIG. 2”. Therefore, the passages and figures cited by applicants are respectfully submitted to be appropriate, and they support the interpretation of the present application that a layer of phosphor particles dispersed in a binder as shown in FIG. 2 is clearly considered to be a substantially uniform phosphor layer.

With regard to the term “dots”, claims 9, 10, 12, and 14 have been amended to use the more generic term “regions” to avoid confusion.

Application No.: 10/726,997

Case No.: 58389US004

CONCLUSION

In view of the foregoing, pending claims 1-7, 9, 10, and 12-14 are submitted to be in condition for allowance, the early indication of which is earnestly solicited.

Respectfully submitted,

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Date

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- 10 of 10 -

Application No.: 10/726,997

Case No.: 58389US004

Request for Extension of Time

DUPLICATE

Under the provisions of 37 CFR § 1.136(a), Applicants petition to extend the period for filing a reply in the above-identified application. The requested extension and appropriate fee are as follows (check time period desired):

- ☐ 37 CFR § 1.17(a)(1) - Extension within first month
- ☒ 37 CFR § 1.17(a)(2) - Extension within second month
- ☐ 37 CFR § 1.17(a)(3) - Extension within third month
- ☐ 37 CFR § 1.17(a)(4) - Extension within fourth month.

Please charge the required fee for this extension to Deposit Account No. 13-3723. One copy of this sheet marked duplicate is also enclosed.

DUPLICATE

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